AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A method for detecting an information signal, a tone of a specified frequency, or a phase change of the tone in a signal which contains the information signal or the tone the method comprising:

dividing the signal into a plurality of blocks corresponding to time segments of the signal, wherein the blocks have an adjustable length which is set to ensure accurate detection of the information signal, the tone or the phase change;

selecting a predetermined number of the blocks to be processed for detection, wherein the blocks which are not selected are not further processed;

transforming sample values of the signal in selected blocks from the time domain to the frequency domain, to produce at least one output value; and

detecting the information signal, the tone or the phase change based on said at least one output value.

2. (Previously Presented) The method in particular according to claim 1, wherein said detecting comprises mapping a plurality of output values for the selected blocks, and generating a decision value based on a result of said mapping.

3. (Previously Presented) The method according to claim 2, wherein the mapping comprises a summation of the output values.

4. (Previously Presented) The method according to claim 2, wherein the mapping comprises a product of the output values.

5. (Currently Amended) The method according to claim 1, wherein the transforming is frequency-selective and is adjusted to the frequency of the tone currently to be detected.

6. (Currently Amended) The method according to claim 1, wherein the transforming comprises applying a Fourier transform to the sample values of the selected blocks.

7. (Currently Amended) The method according to claim 1, wherein the transforming comprises multiplying the sample values of selected blocks by a window function and then applying a Fourier transform to the sample values multiplied by the window function.

8. (Previously Presented) The method according to claim 6, wherein the Fourier transform is computed by using a Goertzel algorithm which is adjusted to the specified frequency of the tone to be detected.

9. (Currently Amended) The method according to claim 1, wherein said detecting step comprises detecting a phase relation at a first moment and a second moment [[which]]

occurring a predetermined time after the first moment to determine a phase change from complex output values of the transforming step, comparing a phase difference between the phase relations at the first and second moments with a phase difference between the phase relations of the second moment and a third moment occurring the predetermined time after the second moment, and determining whether a phase change exists based on a result of the comparing of the two phase differences.

10. (Previously Presented) The method according to claim 9, wherein the transforming is performed using complex multiplication.

11. (Currently Amended) The method according to claim 9, characterised by its wherein implementation by evaluation of the formula

$$\tilde{y}_{v}(N\text{-}1)\,\tilde{y}^{*}_{v+2}(N\text{-}1)\,\tilde{y}^{*}_{v+2}(N\text{-}1)\,\tilde{y}_{v+4}(N\text{-}1) = z$$

where z is a decision variable, $\tilde{y}_{v}$ and $\tilde{y}_{v+2}$ denote output signals of blocks v and v+2, respectively, [[and]] $\tilde{y}^{*}$ denotes a conjugated complex [[variable]] output signal of block v+4 and N denotes a block length of the blocks v, v+2 and v+4.

12. (Currently Amended) The method according to claim 1, wherein the [[block]] adjustable length of the blocks or a number of blocks used for detection is adjusted as a function of the signal/noise ratio (SNR) of the signal so that a substantially constant error rate of detection is achieved over a range of signal/noise ratios.

13. (Previously Presented) The method according to claim 1, wherein a plurality of channels are processed in a time-division multiplex with offset blocks.

14. (Previously Presented) A device for detecting an information signal, a tone a phase change of the tone in at least one signal which contains the information signal or the tone, the device comprising:

a analog-to-digital converter for converting the signal into a plurality of sample values; and

a detector for dividing sample values of the signal into a plurality of blocks corresponding to time segments of the signal, wherein the blocks have an adjustable length which is set to ensure accurate detection of the information signal, the tone or the phase change, selecting a predetermined number of the blocks to be processed for detection, transforming the sample values in selected blocks from the time domain to the frequency domain to produce at least one output value, and detecting the information signal, the tone or the phase change based on said at least one output value, wherein the blocks which are not selected are not processed.

15. (Previously Presented) The device according to claim 14, further comprising a memory device and a control device which during operation supplies data contained in the memory device concerning tones to be detected to the detector which generates an output signal indicating whether the tone or the phase change has been detected.